

Appl. No. 10/067,910

Amendments to the Drawings:

Sheets 1/9, 2/9 and 3/9 have been amended.

Figures 1, 2A and 2B on sheets 1/9, 2/9 and 3/9, respectively have been amended to include labels for boxes 130, 140, 150, 160, 180, 190 and 220.

Attachment: Replacement Sheets

Annotated Sheets Showing Changes

Appl. No. 10/067,910

REMARKS/ARGUMENTS

Amendments to Specification

Two minor editorial corrections have been made in the specification by replacing the paragraph starting on p. 16, line 18 and replacing the paragraph starting on p.18, line 16.

Amendments to Drawings

The Examiner has objected on page 2 of the Office Action to Figures 1, 2A and 2B "because there are no descriptive legends for the boxes". The majority of the boxes in Figures 1, 2A and 2B include descriptive labels that would be understood by one skilled in the art along with their respective reference characters for easier identification. Applicant has amended Figures 1, 2A and 2B to include the label "PIN" for boxes 130, 140, 150, 160, 180, 190, and 220 to aid in identifying the boxes as PIN detectors. The amendment to the drawings is supported by page 15, lines 4-6 of the specification. Applicant submits that the amendment provides the desired result requested by the Examiner of descriptive labelling for the boxes.

Status of Claims

Claims 1-3 and 15 remain in the application. Claims 4-14 and 16-38 have been cancelled. New claims 39 to 44 have been added to the application.

Amendments to the Claims

Claim 1 has been amended to recite "A method of monitoring cross-talk, at a point in an optical system, arising at least in part from a non-linear process in a transmission medium utilized in the optical system, in a multiplexed optical signal having a plurality of channels upon one or more of which has been impressed, at another point in the optical system, a unique dither, the method comprising:

determining channel power of at least one channel of the plurality of channels;

determining a fractional power of any dither present upon the at least one channel resulting at least in part from the non-linear process in the transmission medium; and

Appl. No. 10/067,910

determining a power transfer coefficient from the fractional power and the channel power of the at least one channel, the power transfer coefficient indicative of cross-talk occurring on the at least one channel from any of the plurality of channels upon which the unique dither has been impressed, the cross-talk due at least in part to the non-linear process in the transmission medium", wherein the underscored portions have been added to the claim.

Support for the amendments are found on page 2, lines 21-23, page 12, lines 18-19 and page 18, line 16 to page 19, line 3. Claim 15 has been amended to add similar subject matter.

New claims 39 and 40 further define the non-linear process recited in claims 1 and 15 as being stimulated Raman scattering. New claims 41-44 are similar to subject matter of some of the claims that have been withdrawn, but are dependent on the claims remaining in the application.

35 U.S.C 102 Claim Rejections

The Examiner has rejected claims 1-3 and 15 under 35 U.S.C. 102(b) as being anticipated by non-patent reference "Method for Crosstalk Measurement and Reductions in Dense WDM Systems", Journal of Lightwave Technology, Vol. 14, No. 6, June 1996 by K. Ho.

With respect to claim 1, the Examiner alleges that Figure 1 in the Ho reference teaches a crosstalk monitoring scheme which includes multiplexing of an optical signal comprising wavelength channels $\lambda_1, \dots, \lambda_i, \dots, \lambda_N$ wherein each channel is impressed with a dither frequency f_i .

Claim 1 amended as described above recites that cross-talk arises in part from a non-linear process in a transmission medium. Ho discloses both in the Abstract and Introduction of the reference that the cross-talk being monitored is a result of "other adjacent channels arising from limited stop-band rejection of optical filters". The system described in the Ho reference uses a grating-based demultiplexer to implement the optical filters. The Ho reference clearly discloses in the Introduction that "because a grating-based demultiplexer induces only linear crosstalk, our technique can cancel nearly all crosstalk" (emphasis added). In the Ho reference, the cross-talk being monitored is a linear effect resulting from a device located at a particular position in the system, namely the grating-based demultiplexer. Ho does not disclose that cross-talk is a result, at least in part of the transmission medium of the system or that power transfer

Appl. No. 10/067,910

coefficients are indicative of cross-talk, due at least in part to a non-linear process in the transmission medium, as recited in amended claim 1.

As described at page 2, lines 21-26 of the present application "The optical apparatus measures power transfer coefficients arising from a non-linear process in the transmission medium, such as SRS (stimulated Raman scattering). These power transfer coefficients are effectively a measurement of the non-linear processes and may be used in the control and optimization of the transmission system" (emphasis added). In addition, page 10, lines 23-27 of the present application recite that "The invention enables a well known and widely implemented dithered channel tagging and monitoring technique to be applied to WDM systems that would normally be hampered by SRS. The result is a simpler, faster, less expensive and more reliable monitoring system". The Ho reference does not disclose or make any suggestion of monitoring cross-talk resulting at least in part from non-linear processes in the transmission medium, in particular with respect to SRS, or even whether the system disclosed in Ho is hampered by SRS.

For at least the reasons described above it is submitted that Ho does not disclose all the features described in amended claim 1, and as such Ho cannot anticipate amended claim 1. It is respectfully requested that the Examiner reconsider and withdraw the rejection of claim 1.

Claims 2 and 3 depend on claim 1 and as such are allowable as claim 1 is not anticipated for at least the reasons discussed above.

Amended claim 15 includes similar subject matter added to amended claim 1. For similar reasons as described above with regard to claim 1, Applicant submits that amended claim 15 is not anticipated by Ho.

Appl. No. 10/067,910

In view of the foregoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

DAVID W. BOERTJES

By 

James McGraw
Reg. No. 28,168

Date: March 13, 2006

JMC:MSS:mcg

Appln. No. 10/067910
Method of WDM Channel Tagging and Monitoring, and Apparatus

ANNOTATED SHEET SHOWING CHANGES

+

1/9

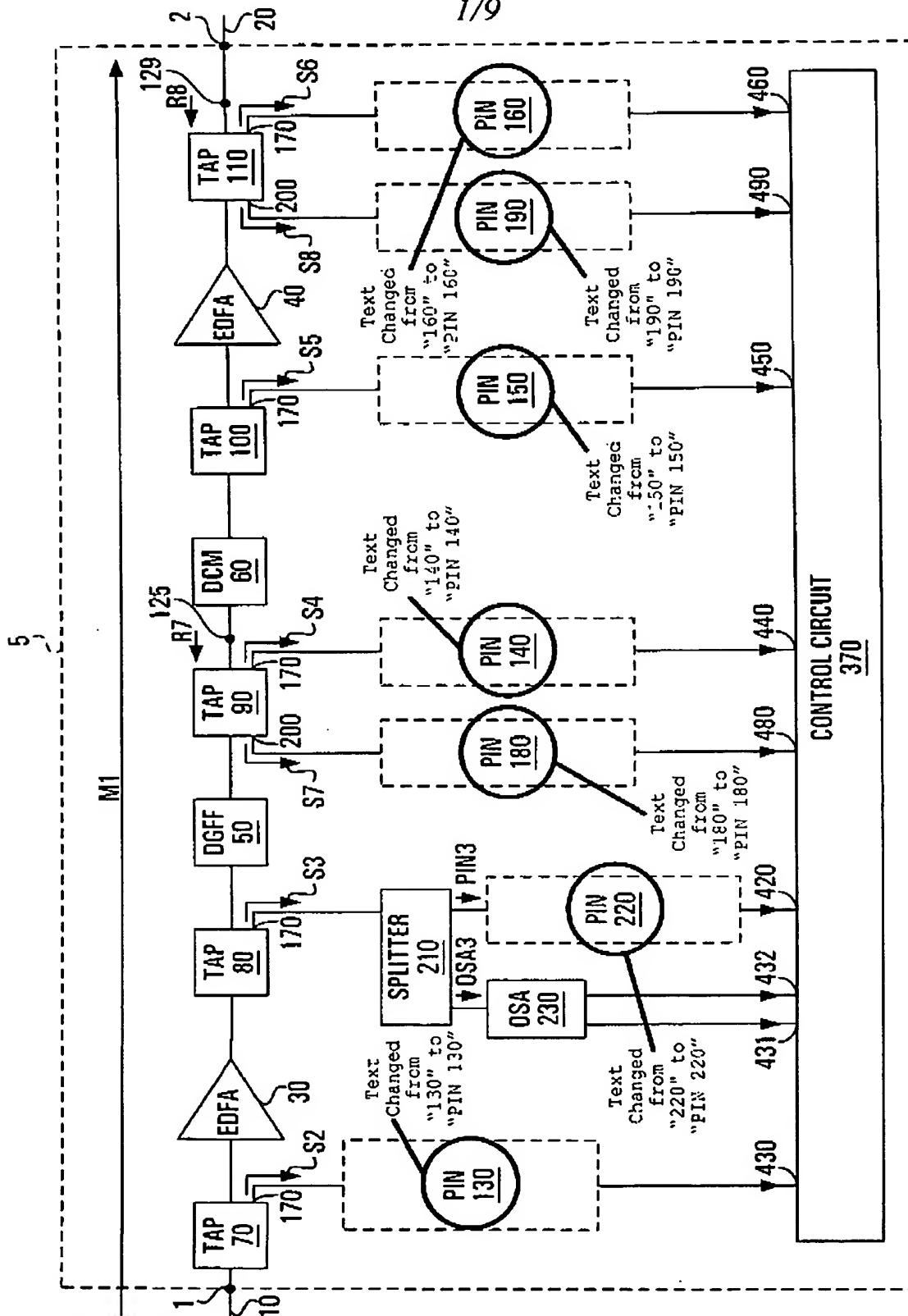


FIG. 1

+

Appln. No. 10/067910

Method of WDM Channel Tagging and Monitoring, and Apparatus

ANNOTATED SHEET SHOWING CHANGES

2/9

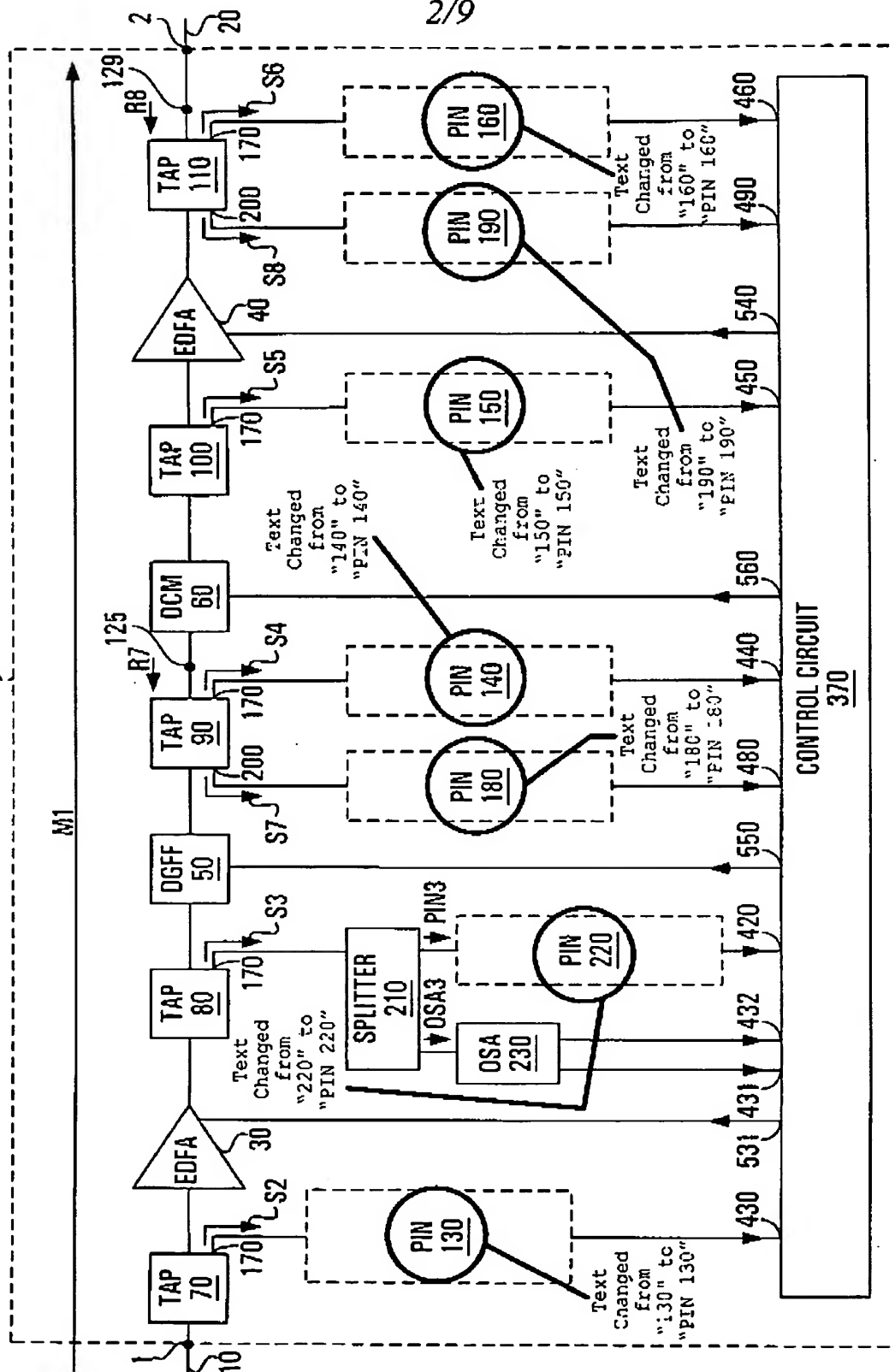


FIG.2A

Appln. No. 10/06/910
Method of WDM Channel Tagging and Monitoring, and Apparatus

ANNOTATED SHEET SHOWING CHANGES

3/9

+

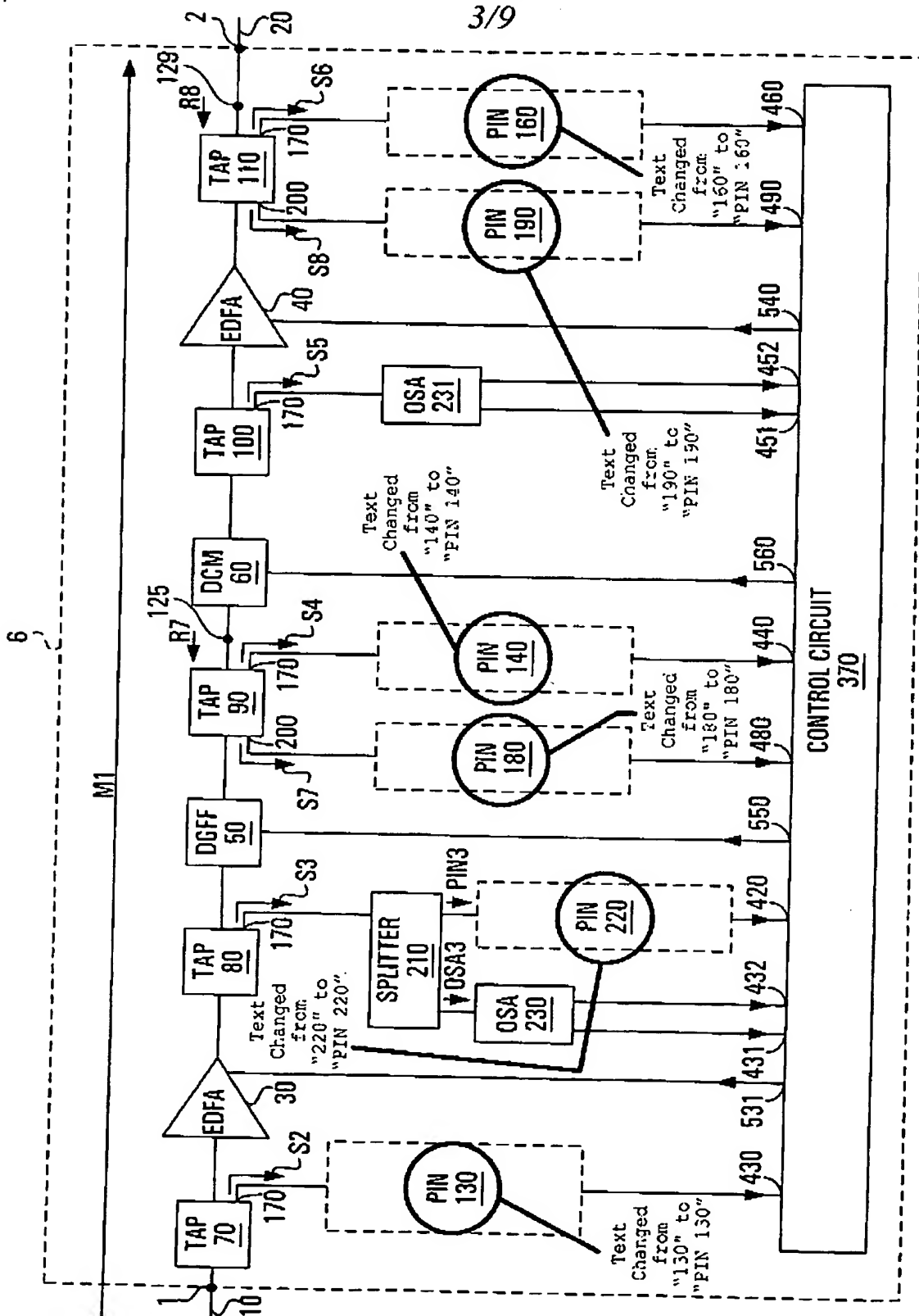


FIG. 2B

+